

Application No. 09/905,719
Reply to Office Action dated February 20, 2003

Docket No. P24,624-A USA

AMENDMENT TO THE CLAIMS

This Listing of Claims will replace all prior versions, and listings, of claims in the application.

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1-21. (Canceled)
22. (Currently Amended) A pencil sharpener comprising:
a first longitudinally elongated external shell having internal ribs defining a first plurality of support surfaces;
a sharpening sub-assembly for sharpening a pencil;
a second longitudinally elongated external shell mated with said first external shell to define a substantially closed compartment, said second external shell having internal ribs defining a second plurality of support surfaces;
wherein said first and second pluralities of support surfaces cooperate with each other to laterally position and fixedly retain said sharpening sub-assembly within said shells.

23. (Original) The pencil sharpener of claim 22, wherein said first and second pluralities of support surfaces serve as the sole means of mounting said sharpening sub-assembly in said compartment.

24. (Original) The pencil sharpener of claim 22, wherein said sharpening sub-assembly comprises:

Application No. 09/905,719
Reply to Office Action dated February 20, 2003

Docket No. P24,624-A USA

B2

a blade-supporting shaft;
a rotary blade¹⁵⁴ and a pinion¹⁵⁶ supported co-axially on said blade-supporting shaft, said rotary blade having spiral cutting edges;
a blade holder¹⁶⁰ defining a cavity for receiving an end of the said pencil therein and supporting said blade-supporting shaft, said blade holder being supported by said first and second external shells to be rotatable around an axis of said cavity;
a cutter gear¹⁷⁰ module defining a pencil-receiving opening and including an annular ring gear¹⁷⁴ meshing with said pinion¹⁵⁶; and
a drive shaft¹⁷² which drives said blade holder around said axis;
wherein said drive shaft is capable of driving said blade holder around said cavity, causing said pinion to travel along said annular ring gear¹⁷⁴ and said rotary blade to rotate and sharpen the pencil advanced into said cavity.

25. (Original) The pencil sharpener of claim 24, wherein said blade holder defines a ring flange and said cutter gear module defines a ring groove for registering with said ring flange; and

wherein said blade holder is rotatably supported at one end by said cutter gear module when said ring flange is positioned within said ring groove, said cutter gear module being supported by said first and second external shells.

26. (Original) The pencil sharpener of claim 22, further comprising:
an electric motor operatively connected to said sharpening sub-assembly for

Application No. 09/905,719
Reply to Office Action dated February 20, 2003

Docket No. P24,624-A USA

driving said sharpening sub-assembly, said first and second pluralities of support surfaces cooperating with each other to engage and retain said electric motor in response to mating of said first and second external shells, said first and second pluralities of support surfaces serving as the sole means of mounting said electric motor in said compartment.

27. (Original) The pencil sharpener of claim 24, further comprising:

B² an electric motor operatively connected to said sharpening sub-assembly for driving said sharpening sub-assembly, said first and second pluralities of support surfaces cooperating with each other to engage and retain said electric motor in response to mating of said first and second external shells, said first and second pluralities of support surfaces serving as the sole means of mounting said electric motor in said compartment;

wherein said motor gear module comprises a switch operatively connected to said electric motor for driving said sharpening sub-assembly when said switch is activated upon insertion of the pencil into said pencil-receiving opening.

28. (Original) The pencil sharpener of claim 27, wherein said switch comprises a pawl and a pair of contacts mounted on said cutter gear module, said pawl being positioned to cause said pair of contacts to electronically connect for closing a circuit.

Application No. 09/905,719
Reply to Office Action dated February 20, 2003

Docket No. P24,624-A USA

29. (Original) The pencil sharpener of claim 24, wherein said cutter gear module comprises:

a switch operatively connected to said electric motor for preventing operation of said motor unless said switch is activated by mating of a receptacle with said first and second external shells.

30. (Original) The pencil sharpener of claim 29, wherein said switch comprises a pawl and a pair of contacts mounted on said cutter gear module, said pawl being positioned to cause said pair of contacts to electronically connect for closing a circuit.

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31. (Currently Amended) The pencil sharpener of claim 24, further comprising:

a dual switch operatively connected to said electric motor for driving said sharpening sub-assembly only when said dual switch is activated by a pencil inserted into said pencil-receiving opening and by a receptacle mated with said first and second external shells.

32. (Original) The pencil sharpener of claim 31, wherein said dual switch comprises:

a first contact electrically connected to a first side of a circuit powering said electric motor;

Application No. 09/905,719
Reply to Office Action dated February 20, 2003

Docket No. P24,624-A USA

a second contact electrically connected to a second side of said circuit;
a third contact mounted in spaced relationship to said first and second contacts;

a first pawl mounted on said cutter gear module in position to cause said third contact to electrically connect with said first contact responsive to insertion of a pencil into said pencil-receiving opening; and

a second pawl mounted on said cutter gear module in position to cause said third contact to electrically connect with said second contact responsive to mating of a receptacle with said first and second external shells.

B2 33. (Original) The pencil sharpener of claim 32, further comprising a receptacle removably matable with said first and second external shells for receiving pencil shavings discharged from said sharpening sub-assembly.

34. (Original) The pencil sharpener of claim 33, wherein said receptacle comprises an internal fin positioned to contact said second pawl of said dual switch.

35. (Currently Amended) A pencil sharpener comprising:
a first external shell having internal ribs defining a first plurality of support surfaces;
a cutter assembly defining a ring flange and having a rotatable pinion;
a cutter gear module defining a pencil-receiving opening and including an

Application No. 09/905,719
Reply to Office Action dated February 20, 2003

Docket No. P24,624-A USA

annular ring gear meshing with said pinion, said gear module defining a ring groove for registering with said ring flange;

a second external shell mated with said first external shell to define a substantially closed compartment, said second external shell having internal ribs defining a second plurality of support surfaces;

whereby said cutter assembly is rotatably supported at one end by said gear module when said ring flange is positioned within said ring groove; and

wherein each internal rib comprises a first side and a second side opposite said first side, each of said first and second sides adjoining one of said first and second external shells, each of said first and second pluralities of support surfaces extending between a respective first and second side of a respective rib; and

b2 wherein said first and second pluralities of support surfaces cooperate with each other to engage and retain said cutter assembly and said gear module in said compartment.

36. (Original) The pencil sharpener of claim 35, wherein said first and second pluralities of support surfaces serve as the sole means of mounting said cutter assembly and said gear module in said compartment.

37. (Original) The pencil sharpener of claim 35, wherein said cutter assembly comprises:

a blade-supporting shaft;

Application No. 09/905,719
Reply to Office Action dated February 20, 2003

Docket No. P24,624-A USA

a rotary blade carried co-axially on said blade-supporting shaft, said rotary blade having spiral cutting edges;

a blade holder defining a cavity for receiving an end of a pencil therein and supporting said blade-supporting shaft, said blade holder being supported by said first and second external shells to be rotatable around an axis of said cavity; and

a drive shaft which drives said blade holder around said axis;

wherein said pinion is carried co-axially on said shaft;

whereby said blade holder is rotatably supported at one end by said gear module when said ring flange is positioned within said ring groove, said gear module being supported by said first and second external shells; and

whereby said drive shaft is capable of driving said blade holder around said cavity, causing said pinion to travel along said annular ring gear and said rotary blade to rotate and sharpen any pencil advanced into said cavity.

38. (Currently Amended) The pencil sharpener of claim 37, further comprising:

a dual switch operatively connected to said electric motor for driving said sharpening sub-assembly only when said switch is activated by a pencil inserted into said pencil-receiving opening and by a receptacle mated with said first and second external shells.

39. (Original) The pencil sharpener of claim 38, wherein said dual switch

Application No. 09/905,719
Reply to Office Action dated February 20, 2003

Docket No. P24,624-A USA

comprises:

a first contact electrically connected to a first side of said circuit powering said electric motor;

a second contact electrically connected to a second side of a said circuit;

a third contact mounted in spaced relationship to said first and second contacts;

a first pawl mounted on said cutter gear module in position to cause said third contact to electrically connect with said first contact responsive to insertion of a pencil into said pencil-receiving opening; and

a second pawl mounted on said cutter gear module in position to cause said third contact to electrically connect with said second contact responsive to mating of a receptacle with said first and second external shells.

40. (Original) The pencil sharpener of claim 39, further comprising:

an electric motor operatively connected to said cutter assembly for driving said cutter assembly, said first and second pluralities of support surfaces cooperating with each other to engage and retain said electric motor in said compartment when first and second external shells are mated, said first and second pluralities of support surfaces serving as the sole means of mounting said electric motor in place in said compartment; and

a receptacle removably/matable with said first and second external shells for receiving pencil shavings discharged from said sharpening sub-assembly.

Application No. 09/905,719
Reply to Office Action dated February 20, 2003

Docket No. P24,624-A USA

41. (Original) The pencil sharpener of claim 40, wherein said receptacle comprises an internal fin positioned to contact said second pawl of said dual switch.

42. (Currently Amended) A method of manufacturing a pencil sharpener, comprising:

providing internal sharpener components, said components including a cutter assembly capable of sharpening a pencil and an electric motor for driving said cutter assembly;

providing a longitudinally elongated first external shell, said first shell having internal ribs defining a first plurality of support surfaces configured to be capable of laterally supporting said sharpener components;

B² providing a longitudinally elongated second external shell matable with said first external shell to form a housing of said pencil sharpener when so mated, said second shell having internal ribs defining a second plurality of support surfaces, said second plurality of support surfaces capable cooperating with said first plurality of support surfaces to laterally support and fixedly retain said internal sharpener components within said housing when said first and second shells are mated;

placing said internal sharpener components on said first external shell such that said sharpener components are laterally supported by said internal ribs of said first external shell; and

mating said second external shell to said first external shell to complete said housing and fix said internal components therein.

Application No. 09/905,719
Reply to Office Action dated February 20, 2003

Docket No. P24,624-A USA

43-44. (Canceled)

45. (New) The pencil sharpener of claim 22, wherein each of said internal ribs comprises a first side and a second side opposite said first side, said first and second sides adjoining one of said first and second external shells, and wherein each of said support surfaces extends between respective first and second sides of a respective internal rib, said support surfaces cooperating to engage said sharpening sub-assembly.

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46. (New) The pencil sharpener of claim 35, wherein each of said first and second external shells is elongated in a longitudinal direction, and wherein said first and second pluralities of support surfaces cooperate with each other to laterally position said cutter assembly and said gear module in said compartment.